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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/617,052

07/11/2003

Hiroshi Takami

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EXAMINER

GRAINGER, QUANA MASHELL

ART UNIT

PAPER NUMBER

2852

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/617,052

Applicant(s)

TAKAMI, HIROSHI

Examiner

Quana Grainger

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period of Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-8 and 13-16 is/are allowed.
- 6) ☒ Claim(s) 1-3, 9-11, 17-18 is/are rejected.
- 7) ☒ Claim(s) 4 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed 8-6-2003 and 7-11-2003 has been considered.

Drawings

3. The formal drawings are approved by the examiner.

Title

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-3 and 9-11 are rejected under 35 U.S.C. 102(a) as being anticipated by Watanabe et al. (6,532,347). The electrophotographic image forming system for forming an electrostatic latent image by applying AC voltage to a charger contacting an image carrier and thereby charging the surface of the image carrier by Watanabe et al. comprises a detection

Art Unit: 2852

characteristic switching unit for switching current detection characteristics between the non-discharge region and discharge region when detecting AC charge current by applying a particular AC voltage to the charger; a detector for detecting AC charge current in either the switched non-discharge region or discharge region; and an AC voltage decision unit for deciding AC charge voltage to be applied to the charger during image formation based on the detected AC charge current. The current detection characteristic of detected current is switched between the case where an AC voltage no more than a discharge threshold voltage is applied and the case where an AC voltage no less than the discharge threshold voltage is applied. The discharge threshold voltage being the voltage for initiating discharge to the image carrier when DC voltage is applied to the charger, the current running when at least one AC voltage no more than the discharge threshold voltage is applied to the charger and the current running when at least two AC voltages no less than the discharge threshold voltage are applied thereto are detected during non-image formation.

Watanabe et al. teaches an electrophotographic image forming method of forming an electrostatic latent image by applying AC voltage to a charger contacting an image carrier and thereby charging the surface of the image carrier, comprising the steps of: switching the current detection characteristics between the non-discharge region and discharge region when detecting AC charge current by applying a particular AC voltage to the charger; detecting AC charge current in either the switched non-discharge region or discharge region; deciding AC charge voltage to be applied to the charger during image formation based on the detected AC charge current; and controlling the decided AC charge voltage to be applied to the charger during image formation.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. Watanabe et al. does not teach a storage medium for storing a computer program for controlling electrophotographic image formation. However, the examiner takes official notice that it is known in the art to use a storage medium for storing a computer program for controlling electrophotographic image formation device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the computer program for controlling the device of Watanabe et al. on computer program as is known in the art.

Prior Art of Record

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sunahara et al. (2003/0219268A1) teaches a charging device utilizing an AC voltage.

Allowable Subject Matter

10. Claims 4 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 5-8 and 13-16 are allowed. Claim 5 recites an electrophotographic image forming system for forming an electrostatic latent image by applying AC voltage to a charger contacting an image carrier and thereby charging the surface of the image carrier, comprising: ~~XX~~ a first detector that applies a particular AC voltage to the charger and detects AC charge current in the non-discharge region; a second detector that has a current detection characteristic different from that of the first detector and detects AC charge current in the discharge region; and an AC voltage decision unit that decides an AC charge voltage to be applied to the charger during image formation based on the detection results of the first detector and the second detector. Claim 13 recites an electrophotographic image forming method of forming an electrostatic latent image by applying AC voltage to a charger contacting an image carrier and thereby charging the surface of the image carrier, comprising: a first detection step of applying a particular AC voltage to the charger and detecting AC charge current in the non-discharge region; a second detection step of detecting AC charge current in the discharge region using a current detection characteristic different from that of the first detection step; a decision step of deciding an AC charge voltage to be applied to the charger during image formation based on the detection results obtained in the first detection steps and the second detection step; and a control step of controlling the decided AC charge voltage to be applied to the charger during image formation.

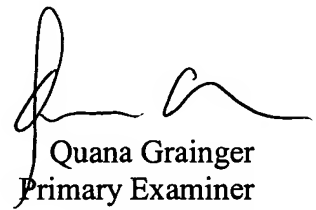
Art Unit: 2852

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quana Grainger whose telephone number is 571-272-2135. The examiner can normally be reached on weekdays between the hours of 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Quana Grainger
Primary Examiner
Art Unit 2852

QG